

- c. a non-conductive overlay overlying and secured to the upper face of the foil and the upper side of the electrode and having an upper surface remote from the foil and electrode and
- d. a well extending into the non-conductive overlay from the upper surface thereof to the upper side of the electrode and being exposed to the upper side of the electrode.

3. A method as in claim 2 and wherein the electrode is comprised of a metal, metal chloride and/or metal oxide selected from silver, gold, palladium, nickel, platinum, iridium and their chlorides and oxides.

4. A chemical sensor package as in claim 2 which further comprises a non-conductive underlayer underlying the lower face of the foil and having a lower surface remote from the foil and an opening therethrough at a location adjacent the lower face of the foil, whereby to provide access to the lower face of the foil at said location to permit readily connectable and disconnectable pressure electrical interconnection with another element at the lower surface of the substrate.

5. A chemical sensor for sensing a target chemical which comprises a sensor package as in claim 2 having sensing means in the well of the sensor package capable of electrochemically sensing a target chemical at the well.

6. A chemical sensor package comprising:

- a. an electrically conductive foil having an upper face and an opposed lower face,
- b. a sensing electrode overlying the foil and having a lower side facing toward the upper face of the foil and in electrical communication with the foil and an opposed upper side facing away from the foil,

- c. a non-conductive overlay overlying and secured to the upper face of the foil and the upper side of the electrode and having an upper surface remote from the foil and electrode,
- d. a well extending into the non-conductive overlay from the upper surface thereof to the upper side of the electrode and being exposed to the upper side of the electrode and
- e. a three-dimensional conductive circuit feature formed integrally with the foil that projects below the lower face thereof for providing a readily connectable and disconnectable pressure interconnection to another element below the lower face of the foil.

7. A chemical sensor package as in claim 6 and wherein the foil is comprised of copper.

8. A chemical sensor package as in claim 6 and wherein the foil is comprised of copper and the electrode is comprised of a metal, metal chloride and/or metal oxide selected from silver, gold, palladium, nickel, platinum, iridium and their chlorides and oxides.

9. A chemical sensor package as in claim 6 and wherein the overlay comprises a polymer film.

10. A chemical sensor package as in claim 9 and wherein the polymer film comprises polyimide film.

11. A generally planar chemical sensor package comprising:

- a. an electrically conductive foil having an upper face and an opposed lower face,
- b. a sensing electrode overlying the foil and having a lower side facing toward the upper face of the foil and in electrical communication with the foil and an opposed upper side facing away from the foil,

- c. a non-conductive overlay overlying and secured to the upper face of the foil and the upper side of the electrode and having an upper surface remote from the foil and electrode,
- d. a well extending into the non-conductive overlay from the upper surface thereof to the upper side of the electrode and being exposed to the upper side of the electrode,
- e. a non-conductive substrate underlying and secured to the lower face of the foil and having a lower surface remote from the foil and
- f. a three-dimensional conductive circuit feature formed integrally with the foil that projects below the lower face thereof, through the non-conductive substrate and outwardly below the lower surface of the substrate for providing a readily connectable and disconnectable pressure interconnection to another element at the lower surface of the substrate.

12. A chemical sensor package as in claim 11 and wherein the foil is comprised of copper and the electrode is comprised of a metal, metal chloride and/or metal oxide selected from silver, gold, palladium, nickel, platinum, iridium and their chlorides and oxides.

13. A chemical sensor package as in claim 11 and wherein the overlay comprises a polymer film.

14. A chemical sensor package as in claim 13 and wherein the polymer film is a polyimide film.

15. A chemical sensor for sensing a target chemical which comprises a sensor package as in claim 6 having sensing means in the well of the sensor package capable of electrochemically sensing a target chemical at the well.

16. A chemical sensor as in claim 15 and wherein the electrode is comprised of a metal, metal chloride and/or metal oxide selected from silver, gold, palladium, nickel, platinum, iridium and their chlorides and oxides.

17. A chemical sensor as in claim 15 and wherein the foil comprises copper.

18. A chemical sensor as in claim 15 and wherein the sensing means comprises an electrolytic medium.

19. A chemical sensor as in claim 15 and wherein the electrode comprises silver and the sensing means in the well comprises a layer of silver chloride at the upper surface of the electrode.

20. A chemical sensor as in claim 15 and wherein the electrode comprises silver and the sensing means in the well comprises a layer of silver chloride at the upper surface of the electrode and an electrolytic medium comprising chloride ions.

21. A chemical sensor as in claim 15 and including a membrane at the upper surface of the overlay covering the well.

22. A chemical sensor as in claim 21 and wherein the membrane is ion selective to thereby allow potentiometric measurement of voltage between the foil and an analyte external to the well that contains a selected ion.

23. A sensor as in claim 21 and wherein the electrode comprises silver and the sensing means in the well comprises a layer of silver chloride at the upper surface of the electrode and an electrolytic medium comprising chloride ions.

24. A chemical sensor as in claim 21 and wherein the electrode is capable of sensing a selected gas and the membrane is permeable to the selected gas to thereby allow potentiometric measurement of voltage between the foil and an analyte external to the well that contains the selected gas.

25. A sensor as in claim 24 and wherein the electrode comprises silver and the sensing means in the well comprises a layer of silver chloride at the upper surface the electrode and an electrolytic medium comprising chloride ions.

26. A method for forming a chemical sensor package which comprises:

- a. forming a conductive foil having an upper face and an opposed lower face and a three-dimensional conductive circuit feature formed integrally therewith that projects below the lower face thereof at a location on the foil for providing a readily connectable and disconnectable pressure interconnection to another element below the lower face of the foil,
- b. forming a sensing electrode on the foil with a lower side thereof facing toward the upper face of the foil and in electrical communication with the foil and an opposed upper side facing away from the foil and
- c. overlaying the upper face of the foil and the upper side of the electrode with a non-conductive overlayer, the overlayer having an upper surface remote from the foil and electrode and a well extending through the overlay from the upper surface thereof to the upper side of the electrode and being exposed to the upper side of the electrode.

27. A method as in claim 26 and including the further step of underlaying the lower face of the foil with a non-conductive underlayer having a lower surface remote from the foil and an opening therein at the location where the three-dimensional circuit feature of the foil projects below the lower face thereof, whereby to permit the circuit feature to project therethrough and downwardly below the lower

surface of the underlayer for providing the readily connectable and disconnectable pressure interconnection to another element at the lower surface of the substrate.

28. A method as in claim 27 and wherein the electrode is comprised of a metal, metal chloride and/or metal oxide selected from silver, gold, palladium, nickel, platinum, iridium and their chlorides and oxides.

29. A method as in claim 27 and wherein the foil comprises copper.

30. A method as in claim 27 and wherein the overlay comprises a polymer film.

31. A method as in claim 30 and wherein the polymer film comprises a polyimide film.

32. A method of forming a chemical sensor package which comprises:

- b. providing a mandrel having an electrically conductive surface configured to produce a foil when a conductive metal is electrodeposited thereupon, the surface having a depression therein,
- c. electrodepositing a conductive metal on the electrically conductive surface to form a foil having a lower face adjacent the mandrel surface and an opposed upper face remote from the mandrel surface and, at the depression in the mandrel surface, a three-dimensional circuit feature formed integrally therewith that project below the lower face thereof at a location on the foil for providing a readily connectable and disconnectable pressure interconnections to another element below the lower face of the foil,
- d. forming an electrode on the upper surface of the foil with the electrode having a lower surface adjacent and in electrical contact with the foil and an opposed upper surface,

- e. laminating a non-conductive coverlayer onto the upper surface of the foil and of the electrode on the mandrel, the non-conductive coverlayer having an lower surface adjacent the upper face of the foil and an opposed upper surface and having an opening therethrough at the location of the electrode, whereby to form a well extending from the upper surface of the cover layer to the upper surface of the electrode and
- f. separating the laminated coverlayer and foil from the mandrel.

33. A method as in claim 32 and including the further step of underlaying the lower face of the foil with a non-conductive underlayer having a lower surface remote from the foil and an opening at the location where the three-dimensional circuit feature of the foil projects below the lower face thereof, whereby to permit the circuit feature to project therethrough and downwardly below the lower surface of the underlayer for providing the readily connectable and disconnectable pressure interconnection to another element at the lower surface of the substrate.

34. A method as in claim 32 and wherein the conductive metal is comprised of copper and the electrode is comprised of a metal, metal chloride and/or metal oxide selected from silver, gold, palladium, nickel, platinum, iridium and their chlorides and oxides.

35. A method as in claim 32 and wherein the overlay comprises a polymer film.

36. A method as in claim 35 and wherein the polymer film comprises a polyimide film.

37. A method for forming a chemical sensor package which comprises:

- a. forming a conductive copper foil having an upper face and an opposed lower face,

- b. forming a sensing electrode on the foil with a lower side thereof facing toward the upper face of the foil and in electrical communication with the foil and an opposed upper side facing away from the foil and
- c. overlaying the upper face of the foil and the upper side of the electrode with a non-conductive overlayer, the overlayer having an upper surface remote from the foil and electrode and a well extending through the overlay from the upper surface thereof to the upper side of the electrode and being exposed to the upper side of the electrode.

38. A method as in claim 37 and wherein the electrode is comprised of a metal, metal chloride and/or metal oxide selected from silver, gold, palladium, nickel, platinum, iridium and their chlorides and oxides

39. A method as in claim 37 and including the further step of underlaying the lower face of the foil with a non-conductive underlayer having a lower surface remote from the foil and an opening therein at the location of the circuit feature of the foil for providing access for a readily connectable and disconnectable pressure interconnection to another element at the lower surface of the substrate.

40. A method of forming a chemical sensor package which comprises:

- a. providing a mandrel having an electrically conductive surface configured to produce a foil when a conductive metal is electrodeposited thereupon,
- b. electrodepositing a conductive metal on the electrically conductive surface to form a foil having a lower face adjacent the mandrel surface,
- c. forming an electrode on the upper surface of the foil with the electrode having a lower surface adjacent and in electrical contact with the foil and an opposed upper surface,
- d. laminating a non-conductive coverlayer onto the upper surface of the foil and of the electrode on the mandrel, the non-conductive coverlayer having a lower